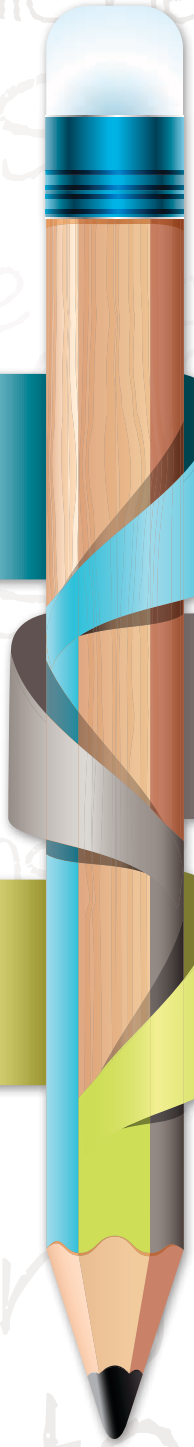
North Carolina

Annual School Health Services Report

2012-2013



North Carolina Department
of Health and Human Services
Division of Public Health
Women's and Children's Health Section
Children and Youth Branch
School Health Unit

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Executive Summary

North Carolina continues as one of the largest state public school systems in the country with more than 1.4 million children enrolled. The 2012-2013 school year saw an increase of 9,823 students from the previous school year. North Carolina's leaders in both education and health agree that health and education are interdependent. Many students are in school with health-related issues that may impose barriers to learning, requiring timely response that fosters the academic success of every student. To this end, by school year 2005-2006, North Carolina instituted comprehensive school health services in every school district. Subsequently, the state's Division of Public Health, the American Academy of Pediatrics, the Centers for Disease Control and Prevention (CDC), the American School Health Association and the National Association of School Nurses established a goal for every public school student to have access to a school nurse in a ratio not to exceed one nurse per 750 regular education students.

Over the years, the state has made comprehensive school health services a priority through strategies such as the N.C. Healthy Schools Coordinated School Health program, the School Health Advisory Councils (SHACs), the N.C. School Health Leadership Assembly, and inclusion of the Coordinated School Health Program model and Healthy Schools recommendations in the North Carolina Prevention Action Plan by the Governor's Task Force for Healthy Carolinians[1]. Other strategies include the School Nurse Funding Initiative, the Child and Family Support Team Initiative, and local funding directed toward school health services and personnel. Support for those efforts continues to be provided through the Department of Public Instruction and the Department of Health and Human Services by designated staff members, including the State and Regional School Health Nurse Consultants, among others. During the 2012-2013 school year the number of full time school nurse positions increased slightly from the year before from 1201.81 to 1212.27 nurse positions. (See chart on page 9 for historical detail.)

While school nurses in North Carolina continue to be employed by a variety of agencies there has been an administrative shift in school nursing services from the local health departments to the LEAs (Local Education Agencies) at the program level. Among the 115 LEAs, almost three-quarters of the school health programs are administered by the school districts themselves. The remaining quarter of the programs are administered by local health departments, hospitals, or a combination of all three. However, a few of these programs are among the largest in the state. As a result, 34% of individual school nursing positions continue to be provided through local health department programs. Funding for school nurse positions is derived from a variety of sources including local and state funds, federal Title V block grant dollars, categorical funds, and public and private foundations.

The increase in the full time equivalents of school nurses this past year ensured that, despite the increase in student population, the school nurse ratio decreased slightly from 1:1,179 in 2011-2012 to 1:1,177 in 2012-2013. The ratio improved in 45% (52) of the LEAs and worsened in 55% (63) of the LEAs. Record keeping on ratio began in August 1998, when 556 school nurses delivered services in 87 counties, and these

[1] Prevention for the Health of North Carolina: Prevention Action Plan, October 2009, Revised July 2010

nurses carried caseloads of approximately 2,450 students each.

The roles and the responsibilities of North Carolina school nurses are different from those of registered nurses working in other settings, consistent with specialty practice standards and requirements. Although principles of nursing remain consistent across the profession, the school nurse also must possess skills related to:

- A population-based focus on the entire school community that includes students, staff, visitors, and community residents.
- Expertise in pediatric and adolescent growth and development.
- Knowledge and clinical expertise in the unique health issues of children and adolescents.
- Ability to identify academic difficulties that may be related to a health problem.
- Ability to problem solve in order to accommodate a student's disabilities and health needs into the challenges of school.
- Knowledge of, and ability to implement, school nursing services in the federal and state programs designed for students with special needs (including both Individual Education Plans and Section 504 Disability Plans).
- Ability to put epidemiological principles into practice, including monitoring for clusters of symptoms that may indicate an emerging health threat for students and staff.
- Knowledge of research findings and emerging issues to educate the school community and implement evidence-based practices.
- Skills in advocating for students and their parents to find common ground and reach agreement on accommodations to health problems.
- Leadership and confidence while negotiating a student's personal crisis or assisting school administration in a school's crisis.
- Ability to practice independently in a setting where he or she is usually the only health professional.
- Skill in fostering integration of the school nurse's role within the broader health care system in support of families and children.

Examples of school nurse activities include:

- Ensuring compliance with school entry health requirements such as immunizations and physical exams.
- Providing care and nursing case management for students with chronic health problems.
- Monitoring security and safe administration of medications.
- Assuring the health and safety of the students and staff.
- Taking a lead role in managing disasters and planning for emergencies.
- Promoting student and staff wellness programs.
- Assuring school compliance with state and local regulations related to health and safety.
- Identifying school health needs and advocating for necessary resources.
- Facilitating collaboration and coordination in student care between the school and the student's medical home provider.

National certification in school nursing is the standard by which school nurses are judged to have the knowledge and skills necessary to provide these health services. During 2012-2013, the number of nationally certified school nurses, as a percentage of the total number of school nurses in North

Carolina, decreased from 53 to 50 percent, related to staff turnover and hiring of nurses in the process of certification completion. North Carolina remains the state with the highest number of nationally certified school nurses in the country.[2]

The skills and knowledge that the school nurse brings to school health activities can be measured partially by outcomes related to the dual goals of improving both a student's health and academic achievement. Data about these improved outcomes are described further under the heading "Student Health Outcomes" and specific examples are included throughout this report.

School nurses continue to provide general health education to staff and students; during the 2012-2013 school year, the nurses reported providing 23,974 programs and presentations:

- 36 LEAs (43%) presented asthma education programs for staff.
- 31 LEAs (29%) provided asthma education programs for students.
- 115 LEAs (100%) provided diabetes education programs for staff.

Managing the care of students with chronic health conditions throughout the school day is a priority function of school nurses. Students spend about one-third of their waking time per week in school[3]. During 2012-2013, the most common chronic health conditions of K-12 public school students in North Carolina, as reported by the nurses who cared for them, included asthma (112,123), ADD/ADHD (75,134), severe allergies (41,063), and diabetes (4,985). School nurses develop individual health care plans and train school staff members to give necessary medications and safely perform nursing procedures delegated by the nurse to school staff. During the 2012-2013 school year, the state's school nurses developed almost 109,911 individual health plans for students. About half of those plans (52,003) were for students with asthma. For each plan, the individual student's medical orders and individual health needs were assessed, goals for student-management were developed, nursing interventions were carried out, staff members were trained, and the student's health status following treatment was evaluated and appropriately shared with families and providers.

Health counseling is defined as any encounter with a student where instruction and advice for health promotion, health improvement and health maintenance were discussed. During the 2012-2013 school year, school nurses provided 299,489 health counseling sessions to individual students and staff. School nurses also facilitated health screenings conducted in schools. Over a half-million school children (512,369) were screened for vision, and more than 27,255 students were seen by physicians or eye care professionals as a result of the referrals from school health professionals to obtain comprehensive eye exams.

Nurses received 125,963 physician orders for individual medications, including drugs ordered to be given regularly during each school day to specific students over the entire school year, drugs such as antibiotics or pain medication ordered daily but for short term use, as well as drugs ordered to be on hand should the student need them. Drugs ordered to be available included those for emergencies (including

[2] NCBSN, 2013 (A number of states require certification in school nursing through a state-designed program rather than the national certificate.)

[3] Hofferth S, Sandberg JF. How American children spend their time. *J Marriage Fam*. 2001;63(2):295-308

diabetes, severe allergies, and intractable seizures) and those ordered for occasional headaches and other ailments. The school nurse reviews the orders prior to administering the medications, training non-health care school staff to administer them, or, when specific conditions are met, assisting students to self-administer these medications. Review of the order by a Registered Nurse trained to identify the indications for use of a drug, its side effects and usual dosages and routes for it to be given, can reduce the incidence of medication errors. When an RN conducts an audit of records of medications given to students, the incidence of errors and risks of additional errors can be spotted and reduced quickly.

School nurses work with their local School Health Advisory Councils (SHAC) to develop and implement local programs designed to prevent illness and promote health. The SHACs are mandated by the North Carolina State Board of Education Healthy Active Children Policy (GCS-S-000). School nurses also assist with disaster/emergency planning for their communities. As the number and complexity of health needs of children in schools continue to grow, so must the availability of school nurses until the recommended ratio of 1:750 is reached and, ideally, there is at least one school nurse in every school in North Carolina.

Introduction

The 2012-2013 report is the 17th Edition of the North Carolina Annual School Health Services Report. For each school year since 1996-1997, the North Carolina Division of Public Health has summarized significant findings from the collected school health data from each school district. This report summarizes data for school health services as reported by school nurses during school year 2012-2013 and provides information on trends.

The survey of the school health service programs also asks for comments regarding outcomes and successes during the past school year and goals for future years. This report includes a small selection of the accounts of successful outcomes; they are labeled "local outcomes" and offer examples of potential solutions to some challenging student health issues.

Methodology

This report is compiled from data submitted by school nurses based on their recording and knowledge of health services provided in their assigned schools. The survey instruments are completed locally based on their observations, and the information collected is not intended for use as surveillance or prevalence data. Data specialists and school health nurse consultants in the N.C. Division of Public Health's Children and Youth Branch developed the survey instrument. Each of the 115 LEAs, 100 percent, participated in the data collection and submitted data onto the survey instrument electronically. These data address health services in North Carolina public schools, not including public charter and state residential schools. This report also does not include data from federal schools, such as those on military bases or in Native American reservations or in private or parochial schools.

The data were collected and sorted by Children and Youth Branch staff and analyzed by staff in the School Health Unit and Best Practices Unit.[4]

Additional data for this report were collected from other sources, including:

- North Carolina Department of Public Instruction;
- North Carolina Department of Health and Human Services, Division of Public Health, Women's and Children's Health Section;
- The National Society to Prevent Blindness North Carolina Affiliate, Inc., and
- North Carolina Child and Family Support Teams Initiative.

Additional data are available for further review by request.

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[4] DATA SOURCES

N.C. Annual School Health Nursing Survey: Summary Report of School Nursing Services 2009-2010

N.C. Division of Public Health • Department of Health and Human Services

Public Schools of North Carolina • Department of Public Instruction

Survey Population

Profile of Students Enrolled in North Carolina Public Schools

North Carolina's 1.4 million (1,427,281) school children are as diverse as the state's population.[5] They come from all socio-economic backgrounds and represent ethnicity from around the globe. A slim majority are male (51.2%) and white (51.8%). Other racial and ethnic populations in our schools are: Black or African American, 26.1%; Asian, 2.6%; Hispanic, 14.3%; American Indian, 1.4%; other, 3.7%. Students attend our 2,526 public schools in 115 educational districts (100 districts organized by county and 15 by city). Of those public schools, 108 are public charter schools that served 48,795 children during 2012-2013.

Exceptional Children

Intellectual, emotional and health impairments are among the disabilities that may interfere with a student's ability to learn. Nearly 12 percent of the state's public school children have disabilities that impact learning to such a degree that they are eligible to receive additional specialized instruction through the Exceptional Children's (EC) services. According to federal and state regulations, students with disabilities may be enrolled and receive appropriate educational services from ages 3 through 21. During the 2012-2013 school year, approximately 15,317 preschool students and 189,761 students ages 6-21 in North Carolina grades kindergarten through 12th were enrolled in EC programs.[6]

Students in the EC program often require the assistance of school nurses, as many of them have additional conditions beyond their primary disability that require health care plans, emergency action plans, and other health accommodations. Most school nurses care for these students in addition to students in regular education. A small percentage of school nurses (fewer than 2 percent) are assigned to work exclusively in the EC program.

All students eligible for EC services must meet criteria for one primary disability from among 13 eligible categories, and may meet criteria for additional disability categories. Although "specific learning disability" (71,320 students) was the most frequent classification among students in EC programs in North Carolina, "other health impairment" was the second most frequent primary disability (33,585 students). The state EC program classified another 7,017 students with these health-related primary disabilities: "traumatic brain injured," "visual impairment," "hearing impaired," "orthopedically impaired," and "multiple disabilities." The school nurse is involved in planning and caring for the student with a chronic health condition, sometimes in direct care and other times in delegating, training and overseeing nursing care provided by other school staff.

School nurses often arrange for and provide general supervision of other nurses in the school setting. In some LEAs (19 during the 2012-2013 school year), private-duty nurses, including licensed practical nurses (LPNs), provided care to students who were medically fragile and needed care on a one-on-one basis during the entire school day. The LPNs worked under the supervision of a registered nurse as required by the N.C. Board of Nursing. LPNs may be hired by the school system or by an agency to provide direct care to an individual student who

[5] http://www.ncpublicschools.org/fbs/accounting/data/ (Accessed 10-11-13) Does not include charter school or state residential school students.

[6] http://ec.ncpublicschools.gov/reports-data/child-count (ages 6-21) (Accessed 10-11-2013)

needs such a level of nursing care due to severe disabilities or such severe health conditions that the care cannot be provided by a teaching assistant.

Pre-kindergarten (Pre-K) Students

The physical well-being of children when they enter school is one of five domains that lead to success in school, according to the N.C. Ready Schools Initiative. North Carolina state government and the federal government provide funding for students in pre-school programs to promote future success in school. In the public schools, those students enroll in The North Carolina Pre-Kindergarten Program, Title I Preschool, and Exceptional Children Preschool. The state's school nurses serve pre-k students to maximize their ability to be "healthy and ready to learn" at kindergarten entry, partnering with the community to provide health screening and health services to the children and their families. During the 2012-2013 school year, school nurses reported serving 25,803 pre-k students. Many of these preschoolers have disabilities. Nearly half of the students enrolled in preschool, 15,317 students, are enrolled in Exceptional Children programs.[7] Although nearly half (45%) of these students are enrolled due to speech impairments or language delays and 42 percent have developmental delays, the remaining 13 percent have disabilities ranging from autism (1,357, or 8.9%) to hearing, vision, orthopedic or other health impairments (362, or 2.3%). Another 164 students are classified as having multiple disabilities. The preschool student enrollment is not counted in this survey for purposes of the formula that results in the statewide school nurse-to-student ratio.

LOCAL OUTCOME

I joined forces with my school's PE teacher to teach all staff at the school the Heimlich maneuver. Approximately a month later, it was reported that a special needs student began having raspy breathing and turned blue. The teacher did the Heimlich maneuver and retrieved 3 coins from the student's trachea.

Profile of Nurses Employed in N.C. Public Schools

The school nurse is a registered nurse (RN) in a specialized professional practice that requires different educational preparation, experiences, skills and knowledge than that of nurses working in acute care or even other community settings. The American Academy of Pediatrics has affirmed that the school nurse has a crucial role in the seamless provision of comprehensive health services to children and youth.[8] The Academy's position statement of May 2008 states that increasing numbers of students enter schools with chronic health conditions that require management during the school day. School nurses provide preventive services, early identification of problems, interventions, and referrals that serve to improve health and educational outcomes. In North Carolina, the school nurse often functions as a member, and occasionally as the coordinator, of the local School Health Advisory Council. School nurses are involved

[7] http://ec.ncpublicschools.gov/reports-data/child-count/reports/april-1 (Accessed 10-11-2013)

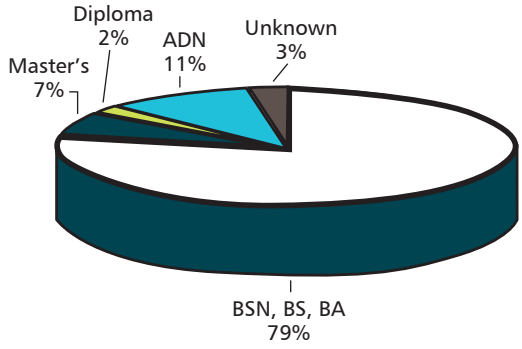
[8] American Academy of Pediatrics: Policy Statement "Role of the School Nurse in Providing School Health Services" May 2008.

in each of the eight components of a Coordinated School Health Program: health services, health education, physical education, nutrition services, health promotion for staff, counseling and psychological services, healthy school environment, and family/community involvement.

Educational Preparation of School Nurses

School nurses are registered nurses (RN) licensed by the North Carolina Board of Nursing. Educational preparation for entry into registered nursing is through one of three routes: a bachelor's degree from a four-year college or university, an associate degree in nursing from a community college or technical college, or a diploma conferred by a hospital. Driven in part by recommendations of national leaders in school health,[9] and in part by recommendations of state leaders and requirements of funding partners, the level of educational preparation of school nurses in North Carolina has increased steadily over the years. It increased again this year, with 86 percent of school nurses holding bachelor's degrees or higher during the 2012-2013 school year.

Educational Preparation



B.S.N.—Bachelor of Science in Nursing
A.D.N.—Associate Degree in Nursing
Diploma—Hospital Based Nursing Education

In addition to the basic preparation of registered nurses through formal education, RNs are expected to learn additional aspects of their specialties through on-the-job and continuing education. Registered nurses who are new to the specialty of school nursing learn their new roles and responsibilities through continuing education provided by the N.C. Division of Public Health, as well as during orientation offered by their school district, health department or hospital employers. The N.C. Board of Nursing requires evidence of continuing education for the state's registered nurses to renew licensure. School nurses in North Carolina attend continuing education activities offered through the nine regional Area Health Education Centers (AHECs), through a number of colleges of nursing, and through the Public Health Nursing Professional Development (PHNPD) provider of continuing education, delivered through a network of state and regional

LOCAL OUTCOME

Our school implemented a staff wellness program this past spring that has been very successful with 3 days per week of planned activities including walking, Zumba, and circuit training. Staff that participated noticed improved energy levels, greater strength, and some staff lost inches. We will continue to work on ways to sustain the wellness program as well as increase staff participation.

[9] American Academy of Pediatrics: Policy Statement "Qualifications and Utilization of Nursing Personnel Delivering Health Services in Schools (RE7089)."

nurse consultants within the N.C. Division of Public Health.

National School Nurse Certification

Since 1998, the N.C. Department of Public Instruction has required that all school nurses hired by local education agencies hold national school nurse certification. Non-certified nurses hired after this date may be employed but must achieve certification within three years of date of employment. School nurses not employed by LEAs are encouraged, and in some cases required, through their funding partners, to obtain certification as a mark of achieving this increasingly recognized standard. National certification requires RN licensure, four-year degree, and a written exam that encompasses the full realm of school nursing, both from clinical and student educational perspectives. Currently about half (50.4%) of North Carolina nurses working in public schools hold national school nurse certification from one of the two national certifying bodies: the American Nurses Credentialing Center (ANCC) or the National Board for Certification of School Nurses (NBCSN).

Certification of NC School Nurses

Total Nurses Listed	1,266
Total Certified	638
NBCSN	617
ANCC	21

As a rule, school nurses in North Carolina have a number of years of practice as a Registered Nurse in acute care and community health settings before entering the school nurse specialty. During the 2012-2013 school year, 68 percent had more than three years' experience in school nursing in addition to prior years of professional practice.

Ratio of School Nurse to Students

The national recommendation for the school nurse-to-students ratio is 1:750 for students in the general population; 1:225 in the student populations requiring daily professional school nursing services or interventions; 1:125 in student populations with severe and profound disabilities and complex health care needs; and 1:1 for some individual students who require daily and continuous professional nursing services.[10] The aforementioned ratios would allow all students to have their health needs safely met while in the school setting, including appropriate preventive, health promotion, early identification and intervention services.

For this report, school nurse-to-students ratios were based on full-time equivalencies (FTEs of positions budgeted for school nurses[11]) working in local education agencies (LEAs). Registered nurses working solely as administrators, without caseloads of students, were not counted in the FTE or ratio. Using that definition, there were 1212.27 FTE budgeted school nurse positions active during the 2012-2013 school year, 10.46 more than 2011-2012.

Each school district in North Carolina must have at least one registered nurse available to provide for school health services, though only the most sparsely populated counties have only one. The number of schools assigned to each school nurse varies from one to ten with an average of two schools per nurse. The school nurse-to-students ratios also vary widely across LEAs. At the end of the 2012-2013 school year, the statewide average ratio of school nurse to students was 1:1,177. Most LEAs showed improvement, and 42 LEAs met the target ratio of 1:750. The ratios ranged from 1:318 in Pamlico County to 1:3,625 in Davidson County Schools. For a

[10] National Association of School Nurses, Position Statement, Caseload Assignments, Adopted 1972, Rev. 2010

[11] FTE =total of all full and part time hours divided by full time hours as defined by local school district

breakdown of school nurse to students ratio by LEA, see Appendix C.

The following chart shows the yearly changes in the number of North Carolina public school nurses in the past five years. A relatively small number of school nurses are employed part-time.

Student Population, School Nurse Staffing, and Nurse-to-Students Ratios

Number of:	School Year 2008-2009	School Year 2009-2010	School Year 2010-2011	School Year 2011-2012	School Year 2012-2013
Schools* (in 115 Local Education Agencies	2,399	2,422	2,524	2,512	2,526
Students**	1,410,497	1,402,269	1,409,895	1,417,458	1,427,281
School Nurse FTEs	1,169.04	1,183.36	1173.50	1201.81	1212.27
Average N.C. School Nurse/ Student Ratio	1:1,207	1:1,185	1:1,201	1:1,179	1:1,177
School Nurse Personnel (Individuals)	1,231	1,233	1,231	1,244	1,252

* Public Schools of North Carolina, "Facts and Figures 2012-2013", February 2013

** NC DPI. Final ADM: http:// www.dpi.state.nc.us/docs/fbs/accounting/data/adm/ratio.xls posted 8-26-11, retrieved 9/27/2011

Employment, Supervision and Financing of School Health Services

Employment

School nurses are primarily employed by their local education agencies (LEA). The administrative responsibility for 73 percent of school health services programs in North Carolina lies within the LEA. In 16% percent of the counties the health department hires, supervises, and manages the school health services program and staff. In three counties, the hospital provides those services, and in the remainder, there is more than one agency providing oversight and management of the school nurses. The largest school health programs in the state are among those administered by local health departments. As a result, those programs employ 34% of the individual school nursing positions.

Administrative agent	Percent of school districts (LEAs)*	Nursing Positions
Local Education Agency (LEA)	73%	661.96
Health Department	16%	410.59
Hospital/Health Alliance	3%	94.72
Administration from a combination of agencies	9%	45.00

* rounded to the nearest percent

LOCAL OUTCOME

In order to maximize resources our program implemented a business model, focusing on increasing the efficiency and cost effectiveness of school nursing and dental health services for students who are identified with specific health or dental conditions. Acuity is determined, based on a formula used to identify specific health needs of students, address health and educational disparities, and thus rank each school based on scores. Allocation of school health service hours are based on the results.

Supervision

School nursing practice is regulated by the North Carolina Board of Nursing and includes requirements for practice evaluation by another registered nurse. Many North Carolina school nurses are directly supervised by non-nurse school staff and therefore limited in their ability to include their clinical practice in an annual evaluation process. During the 2012-13 school year 41 of the 115 LEAs reported the employment of a registered nurse as the school nurse supervisor.

Funding

In any school health program, the funding may come from a variety of sources and be funneled to the agency with administrative responsibility over the program. Rarely is the entire school health services program funded through a sole source.

Funding sources include: local tax revenue, through property taxes allocated to the local school and local health department; N.C. General Assembly appropriations, such as through distributions from the Department of Public Instruction and Division of Public Health; federal reimbursement, including approved Medicaid expense reimbursements or federal Title V grants and categorical funds; hospitals; health care organizations and private foundations. The great majority of school nurses were funded through non-categorical funds provided to the local education system from the Department of Public Instruction. State categorical funds for school nurses provided financial support for 26.1 percent of the school nurses: Child and Family Support Team (CFST) program (79 positions, 6.5 percent of total funding); School Nurse Funding Initiative (SNFI) program (235.75 positions, 19.4 percent).

In recognition of the enormous health needs of school-age children and the relationship between health and academic success, the General Assembly appropriated funds through the School Nurse Funding Initiative (SNFI), beginning in the 2004-05 school year and additionally each long session thereafter. During the 2012-2013 school year the state had 235.75 full time school nurse positions allocated through the SNFI program. These funds are distributed by the N.C. Division of Public Health to local health departments, who may employ the nurses or may sub-contract with local education agencies or hospitals to employ the school nurses.

In 2005, the Child and Family Support Teams Initiative (CFST) was authorized and funded by the N.C. General Assembly. It has been refunded in the 2007, 2009, 2011 and 2013 state budgets.

The CFST Initiative consists of 83 teams of school nurses and school social workers

assigned to 21 selected school districts across the state. The initiative provides recurring state funding for 79 of the teams, while four teams are funded through the utilization of flexible federal, state or local funds that have replaced allocations lost as a result of state budget reductions. The purpose of the CFST Initiative is for school-based professionals to identify students who are potentially at risk of academic failure or out-of-home placement due to physical, social, legal, emotional or developmental factors; to screen them for needed services; then to provide family centered services to plan and manage appropriate interventions.

According to information provided by the CFST's evaluation team (Duke University's Center for Child and Family Policy) in the July 2013 CFST Legislative Report, the nurse-social worker teams identified 6,013 students as being potentially at risk of academic failure or out-of-home placement for the time period of July 1, 2012 through March 31, 2013. Administrative data was used to examine change in a student's standardized academic related scores from the year after he or she had a service plan developed and the year in which the plan was developed. The findings suggested that students whose plans included support for parents experienced a 7% improvement in standardized math scores relative to students whose plans did not include support for parents. Referrals to "other" school services and physical health services were also associated with improved math scores. Students for whom a behavioral contract was planned had a 9% increase in standardized reading scores. Students with behavioral contracts, school-based counseling, and whose plan included mental health services or juvenile justice services experienced improvements in attendance.

Through these state and local efforts to increase funding for school nurses, the number of LEAs meeting the recommended ratio of 1:750 has nearly quadrupled in the years since the 2003-2004 school year. The labor demand for all nurses, including qualified school nurses, has grown rapidly in the past decade. At the same time, the complexity of student health needs has grown. School health program supervisors are highly successful in attracting and retaining school nurses. During the 2012-2013 school year, they continued to fill 99 percent of all school nurse positions. Only eight positions statewide were vacant for the majority of the school year.

School Health Services

School nurses provide basic and comprehensive school health interventions to all children in the population served, including children with special health care needs resulting from acute and chronic complex medical conditions.

Chronic Health Conditions

All children are eligible to attend public school and receive a free and appropriate education. A number of these children – about one of every five students attending school – have chronic health conditions. Since these conditions can affect attendance, school performance, and the students' physical and emotional levels of well-being, school nurses work closely with students, their families, health care providers and school staff to reduce the negative impact of illness on learning. Nurses serve as case managers, evaluate activities of daily living, and develop appropriate modifications for the learning environment.

The number of unduplicated individual students served with chronic health conditions, as reported by the school nurses, was 274,187 in 2012-2013, approximately 19 percent of students. The number of reported individual chronic health conditions (with some students diagnosed with more than one condition) has risen over the past decade. National level estimates of school children living with a chronic disease vary widely. Increase in the North Carolina numbers has been impacted by improved case finding by school nurses as school nursing service availability has improved. The chart in Appendix A lists all the conditions that were counted and also indicates the number of individual health plans written for each student with that condition, totaling 124,835 care plans.

LOCAL OUTCOME

This year I started a student asthma group that meets for education and assessment of knowledge about asthma. I invited 10 students with asthma needs and had the first meeting within the first month of school. By the end of the year all 10 students verbalized and demonstrated an increased knowledge and awareness of their asthma including triggers and how to avoid them.

LOCAL OUTCOME

Parents, students and staff of one school concentrated on life threatening allergies this year as they have the largest number of students with this condition this year. They have increased their knowledge of care and treatment. Students also have embraced the idea of keeping each other safe within the school.

Asthma, a major chronic illness among school children, is the leading cause of school absenteeism nationwide, according to national experts on lung disease. The number of North Carolina students engaged with school nurses related to asthma during the 2012-2013 school year was 112,123 (7.9%).

Severe allergies, such as peanut allergies or allergies to insect stings, are those for which a student carries or is provided

medication at school. During the 2012-2013 school year 41,063 (2.9%) students were listed as having severe allergies, 11,055 more than during school year 2011-2012.

There was a slight increase in the number of students reported with diabetes, 4,985. School nurses provide care as well as train other staff to care for students with diabetes, who bring to school increasingly complex needs and high technology. The school nurse works with the student, family and physician to develop a diabetic care plan (individual health plan) and a nurse or a physician trains school personnel who are designated as diabetic care managers. The General Assembly created the role of diabetic care manager in 2003 to assure consistent care for students with diabetes during the school day. Students with diabetes are assisted in achieving self-manage of their care, which will most likely last their lifetime.

LOCAL OUTCOME

Just before Christmas break a 6th grader was diagnosed with Type I Diabetes. He and his family were in partial denial. I had several meetings and phone calls with the parents and doctor and worked closely with the student on how to count carbs, how insulin works, how activity affects blood sugars. By February his blood sugars was much more controlled. He was much happier and his report card for 3rd quarter was in the A/B range. He seems very proud of himself for controlling his diabetes instead of letting it control him.

Diabetes: Among the 4,985 students reported with diabetes in 2012-2013:

- 3,842 monitor blood glucose at school (with physician's order for procedure);
- 2,251 receive insulin injections at school;
- 1,710 manage insulin pumps; and
- 2,596 are known to self-carry their medication (with appropriate authorizations).

Students in North Carolina public schools are not permitted to carry medications or to self-administer medications except for medications used to treat emergencies in students with asthma, severe allergies and/or diabetes. This past year more students in each category completed the self-carry process in their schools, as listed in the following table. The option comes with precautions to maintain safety and good health, including: 1) appropriate physician authorization to self-carry and self-administer; 2) parental authorization; and 3) student demonstration to a registered nurse of ability to safely and appropriately administer medication, and to understand when to seek assistance. Students who are not able to demonstrate that ability and understanding, or students who intentionally misuse the medications, may have that option temporarily suspended and instead receive those medications with supervision. Even students who are able to self-medicate for asthma, severe allergies or diabetes often still seek the help of a school nurse to assist them.

Medication	Number of children 2011-2012	Number of children 2012-2013	Percent self-carry compared to all diagnosed
Asthma inhalers known for self-carry	20,645	20,526	18%
Diabetes medication known for self-carry	2,778	2,596	52%
Epinephrine auto injectors known for self-carry	3,909	4,027	10% of students with severe allergies; 26% of students with orders for injectors

For a more extensive list of the types of chronic health conditions that were managed at school, see Appendix A, page 39.

Diabetes – Compliance with State Law

In 2009, the General Assembly enacted additional requirements to the "Care of Students with Diabetes Act" (also known as SB 738, additional requirements to SB 911). At the request of the State Board of Education, the School Health Unit of DPH surveyed all public schools in North Carolina, including charter schools, with questions designed to assess compliance with the Act. All public schools were asked these four questions concerning school year 2012-2013:

1. How many students with diabetes were enrolled in your LEA/charter school this past school year?
2. Does your LEA/charter school offer annual generalized diabetes training to school staff, system-wide?
3. Did your LEA/charter school have at least two persons who were intensively trained on diabetes care, in any school in which one or more students with diabetes were enrolled?
4. How many students with diabetes had an Individual Health Plan (IHP) completed by a school nurse or other health care provider in the past school year?

Public, non-charter school districts reported:

Number and percent of school districts with one or more students with diabetes	115 (100%)
Number of students with diabetes	4,552 (0.32% of enrolled students)
Offered annual generalized training about diabetes to school staff, system-wide, as required by the statute	113 (98%)
Students with diabetes who had an Individual Health Plan (IHP) completed by a school nurse (parent or student over age 18 may refuse an IHP)	3,559 (78% of students with diabetes)
In each school where one or more students with diabetes were enrolled, there were two or more persons intensively trained on diabetes care	113 (98%)

Although this publication of the School Health Services report does not otherwise contain information from charter schools, this section summarizes data provided by charter schools to these questions. Each of the public, charter school districts completed these questions and reported:

Charter schools reported:

Number and percent of charter schools with one or more students with diabetes	59 (55% of charter schools)
Number of students with diabetes	144 (0.3% of enrollment)
Offered annual generalized training about diabetes to school staff, system-wide, as required by the statute	52 (95% of the charter schools that had one or more students with diabetes)
Students with diabetes who had an Individual Health Plan (IHP) completed by a school nurse or other health care provider (parent or student over age 18 may refuse an IHP)	117 (81% of students with diabetes)
In each school where one or more students with diabetes were enrolled, there were two or more persons intensively trained on diabetes care	58 (99% of the charter schools with one or more students with diabetes)

Health Care Coordination and Case Management

The school nurse's role often extends beyond the school setting. Students with chronic or serious acute illnesses and conditions often require frequent daily nursing interventions and coordination of health care across a multitude of providers to enable them to remain in school. School nurses utilize a variety of strategies to communicate with all those involved in the care of a student. Nurses serve as liaisons with physicians, dentists, community agencies and families while supporting and caring for the health needs of students. Among the strategies school nurses enlist to provide health care coordination and case management is making visits to the homes of students. More than 9,470 home visits were conducted during the 2012-2013 school year to assist families with student health issues, to investigate chronic absenteeism due to health conditions, to review emergency action plans and other student health plans with parents, and to visit home-bound students or new students with health issues to plan for transition to school.

LOCAL OUTCOME

Our program has incorporated several successful new initiatives this year. We implemented formalized case management. Each nurse chose 1-2 students to pilot the program with and we saw success in having students better manage their health care needs at school.

LOCAL OUTCOME

We completed the third year of formal case management for certain chronic disorders. Data is forthcoming regarding reduced absences, better control of the disorder, fewer emerging episodes at school and better quality of life.

Nursing case management for students with chronic health care needs has been successful in assisting those students in achieving improved health and access to their education. Forty-six school districts reported using a case management process that has been formalized with core components of nursing assessment, nursing interventions for health care management, community resources and support, psychosocial intervention, and documentation and evaluation. During the 2012-2013 school year, coordination of care for students with special health care needs produced outcomes that indicated increased ability by students to manage health conditions in school, and students who received case management services from a school nurse frequently reported positive health outcomes.

School health nurse consultants continue to make a concerted effort in the state to teach and encourage school nurse case management, even in schools without a formalized case management program. Those efforts have led to reports of significant improvement in students' skills in self-care, reducing their own exposures to allergens in order to reduce the need for emergency allergy medications, increasing their ability to participate in the entire school day, including physical education, and demonstrating other improvements in health and ability to manage their conditions. Raw numbers of students receiving school nurse case management services are tallied in the following tables. They demonstrate the positive health and educational outcomes of students who received these services and the progress made since the 2011-12 school year.

Student Health Outcomes

School Nurse Case Management: Asthma Student Outcomes	Number of students measured 2012-13/2011-12	Number of students who demonstrated improvement 2012-13/2011-12	Percent of students measured who demonstrated improvement 2012-13/2011-12
1. Consistently verbalized accurate knowledge of the pathophysiology of their condition	5,479 / 2,124	4,529 / 1,770	83% / 83%
2. Consistently demonstrated correct use of asthma inhaler and/or spacer	6,378 / 2,328	5,281 / 2,062	82% / 89%
3. Accurately listed his/her asthma triggers	4,689 / 2,142	4,060 / 1,827	87% / 85%
4. Remained within peak flow/pulse oximeter plan goals	1,340 / 506	1,249 / 395	93% / 78%
5. Improved amount and/or quality of regular physical activity	3,748 / 1,169	3,278 / 956	87% / 82%
6. Improved grades	1,055 / 810	849 / 600	80% / 74%
7.Decrease number of absences	550 / 1,168	497 / 941	90% / 81%

School Nurse Case Management: Diabetes Student Outcome	Number of students measured 2012-13/2011-12	Number of students who demonstrated improvement 2012-13/2011-12	Percent of students measured who demonstrated improvement 2012-13/2011-12
1. Consistently verbalized an accurate knowledge of the pathophysiology of their condition	1,670 / 904	1,487 / 737	89% / 82%
2. Demonstrated improvement in the ability to correctly count carbohydrates	1,569 / 753	1,386 / 561	88% / 75%
3. Improved skill in testing own blood sugar.	1,650 / 649	1,504 / 544	91% / 84%
4. Showed improvement in HgA1C (if measured and available.)	841 / 816	621 / 738	74% / 90%
5. Consistently (90% of time) calculated insulin dose correctly	1,491 / 285	1,325 / 226	89% / 79%
6. Improved ability to deliver insulin dose	1,169 / 614	1,038 / 520	89% / 85%
7. Improved grades	717 / 442	525 / 328	73% / 74%
8. Decreased number of absences	921 / 582	714 / 426	78% / 73%

School Nurse Case Management: Weight Counseling Student Outcome	Number of students measured 2012-13/2011-12	Number of students who demonstrated improvement 2012-13/2011-12	Percent of students measured who demonstrated improvement 2012-13/2011-12
1. Consistently verbalized accurate knowledge of relationship of food and activity to weight	900 / 288	856 / 214	95% / 74%
2. Kept a daily food diary as planned	196 / 69	105 / 47	54% / 68%
3. Increased physical activity (PE or after school)	925 / 177	885 / 151	96% / 85%
4. Improved frequency of healthy food choices	688 / 279	641 / 206	93% / 74%
5. Consistently able to identify appropriate portion sizes	781 / 78	730 / 60	93% / 77%
6. Improved BMI	248 / 64	183 / 54	74% / 84%
7. Improved BMI (RN worked with RD)	88 / NA	63 / NA	72% / NA
8. Improved grades	145 / NA	100 / NA	69% / NA
9. Decreased number of absences	173 / NA	132 / NA	76% / NA

The following two conditions were added for the 2012-13 school year and therefore have no comparison numbers from the previous school year.

School Nurse Case Management: Seizure Disorder Student Outcome	**Number of students measured 2012-13**	**Number of students who demonstrated improvement 2012-13**	**Percent of students measured who demonstrated improvement 2012-13**
1. Consistently verbalized accurate knowledge of the pathophysiology of his/her condition	527	433	82%
2. Consistently recognized seizure triggers	470	378	80%
3. Reduced side effects of seizure medications	354	290	82%
4. Avoided complications from seizure activity	542	496	92%
5. Reduced number of seizures	548	459	84%
6. Improved grades	295	221	75%
7. Decreased number of absences	423	330	78%

School Nurse Case Management: Severe Allergy Student Outcome	**Number of students measured 2012-13**	**Number of students who demonstrated improvement 2012-13**	**Percent of students measured who demonstrated improvement 2012-13**
1. Consistently verbalized accurate knowledge of the pathophysiology of his/her condition	1856	1730	93%
2. Consistently avoided allergy triggers	1959	1845	94%
3. Improved skill in recognizing hidden sources of allergen	1499	1429	95%
4. Improved skill in epinephrine administration	480	416	87%
5. Reduced episodes of severe allergic reactions	1471	1378	94%
6. Improved grades	436	374	86%
7. Decreased number of absences	714	663	93%

Health Care Treatments and Procedures at School

Some students with chronic illnesses, physical handicaps and/or disabilities require health care procedures to be performed during the school day. The nurses reported processing orders for at least 33,149 individual medical treatments or procedures.

Specified Health Care Procedures

The chart that follows lists the number of medical orders for students for the listed treatments or procedures. These requests continue to grow and comparison to the previous year is provided. In some, a medication is administered to treat a sudden emergency in a student with an underlying condition, and in others, such as administering a tube feeding, a nurse or a person to whom the nurse has delegated the nursing care performs a daily procedure. Among all the listed procedures, only the epinephrine may be used by the student without adult assistance.

Health Care Procedure	2011-12	2012-13
Central venous line management	39	36
Diastat® administration	1807	2,136
Glucagon injection	2521	2,629
Nebulizer treatments	1901	1,580
Shunt care	132	157
Tracheostomy suctioning & cleaning	110	111
Tube feeding	607	717
Administration of epinephrine	13,575	15,625

For each of the procedures or treatments, an individual health plan, and in some cases also an emergency action plan, are developed by the school nurse in collaboration with the family and physician.

LOCAL OUTCOME

All our schools have a least one AED and all schools have an emergency response team in place. We have also increased the number of staff members trained for CPR and first aid.

Emergency Care

Injuries and illnesses are common occurrences in the school-aged population. Because the majority of school nurses cover more than one school building, few schools have a school nurse on duty every school day. Therefore, school nurses must assure that school personnel are trained to provide first aid in emergencies. Seventy-three percent (84 of 115) of the N.C. LEAs reported having staff identified as first responders available daily in each school building.

Currently, 110 LEAs reported having at least one AED (Automated External Defibrillator) on one or more school campuses. During 2012-2013, the AEDs were used five times: three times for students, once for staff, and once for a visitor. Two of those five victims of sudden cardiac arrhythmias survived; two of the events were fatal, and for one the outcome was unknown.

Many minor incidents occur to students and staff during the course of the school day and are often handled by teaching and office staff. School nurses are frequently required to assist with major injuries, of which there were more than 21,588 this past year, an increase of 1,034. For reporting purposes, serious injuries are defined as medical emergencies requiring an emergency medical service (EMS) call or immediate medical care plus the loss of one-half day or more of school.

Of the serious injuries reported, most occurred in physical education (28%), on the playground or school sports fields (27%), and another 22 percent occurred in the classroom. For a complete breakdown of type and place of injury, refer to Appendix B.

No students died from their school-related injuries this past school year. Ten students were permanently disabled by their injuries, and those permanent disabilities included vision loss, nerve and muscle damage, scarring from burns, total knee replacement and testicular amputation. One thousand three hundred fifteen (1,315) injuries resulted from an incident in which police (or resource officers) were called to respond or investigate.

Medications at School

Administration of medications to students by school staff is a serious responsibility, requiring conscientious attention to giving the correct medication in the correct dose to the correct student every time. Secretaries, classroom teachers, and teacher assistants are primarily the school staff members who administer routine medications on a daily basis in the majority of school systems in North Carolina. To ensure that school staff members perform this task with safety and accuracy, it is essential that a school nurse be available to review and participate in the development of school policy and procedures; train and supervise teachers and other staff about all aspects of giving medications correctly; and serve as coordinator among parents, medical providers, and the school. School nurses in all LEAs reported the provision of formal training programs for school employees who were designated to administer medications. They also conducted periodic audits of medication charts and records to assure compliance with all physician and parent orders and to assess the students' responses to medication therapy.

During the 2012-2013 school year, nurses reported that 29,607 medications were given daily to students while at school. Some students received medication daily on a long-term basis (23,048) for chronic conditions, and others for a shorter duration (6,559), such as to treat an infection or injury.

Additionally 96,356 medications were ordered on an "as-needed basis." A physician order for a medication that is directed to be used "as needed" rather than regularly and routinely may mean that the student does not need that drug at all during any given school year. Students whose conditions are properly managed in school may never need such additional drugs or treatments. For example, an order for an epinephrine auto-injector may not be needed if the student's allergens are avoided through directed staff and student education. A student whose daily anti-seizure medications are managing the condition may not have a prolonged seizure requiring Diastat. A student with diabetes, whose blood sugar levels are frequently monitored and treated before they get dangerously low, may not ever need a dose of Glucagon. Yet having the medication and physician order (and parent request) to provide medication should a situation arise is a necessary responsibility that school health nurses manage.

Medication	Number 2010-2011	Number 2011-2012	Number 2012-2013
Number of students on long term medications (more than 3 weeks)	19,954	22,213	23,048
Number of students on short term medications (less than 3 weeks)	8,060	6,296	6,559
Number of students on emergency, as needed, medications	51,511	59,666	63,663
Number of students on non-emergency, as needed, medications	34,879	27,547	32,693

The number of orders for non-emergency medications ordered PRN, or as needed, increased during the 2012-2013 school year, from 27,574 to 32,693. School nurses across the state, as well as physicians and other health care providers who can prescribe medications, carry out the recommendations of the American Academy of Pediatrics to limit school-dosed medications only to those absolutely necessary to maintain the student during the school day. (American Academy of Pediatrics, October 2009, position statement) Because a number of over-the-counter drugs can cause side effects or mask serious illnesses or conditions, state recommendations are to discourage unlimited use of non-prescription medications for school children and require not only parental authorization but also medical provider authorization for any medications given in school during the school day, whether or not a prescription is required for the product. Determining whether the student needs the medication involves interviewing the student, assessing the symptoms, and deciding on a course of action. In the school setting, such assessment and intervention is best handled by a registered nurse, with appropriate delegation as directed by the North Carolina Board of Nursing regulations found in 21 NCAC 36 .0224. Without a nurse at every school, school nurses in North Carolina must delegate the administration of medication to other school personnel. The school nurse provides training and oversight to these non-health care professionals, also called "Unlicensed Assistive Personnel," (UAP) to handle those student medication situations. Most commonly, those persons are teachers, teaching assistants, coaches or school secretaries. School administrators also commonly administer medications. UAP may continue to need school nurse direction, such as when a medication is ordered with parameters, such as "one or two pain relievers depending on pain level," or two types of allergy medications depending on relief obtained by the primary medication.

Administration of epinephrine

Epinephrine auto-injector devices, such as Epi-pen®, deliver a dose of epinephrine in order to treat life-threatening allergic responses. Although a student may self-administer the medication a statutory process is in place that assures student safety through physician orders and nurse assessment of the student's ability to do so (G.S.115C–375.2). Medical orders for epinephrine rose 15 percent during the 2012-2013 school year, and have risen every year since 2007. Orders for epinephrine increased from 3,847 in 2007 to 15,625 by the end of the 2012-2013 school year. Even with state legislation allowing students to self-carry and self-inject epinephrine, only

about 26 percent of the students with an order to have epinephrine available have requested this option. Self-carry legislation requires that physician and parent both find the student willing and especially able, both cognitively and physically, to know when and how to use the medication and to demonstrate this knowledge to school health staff before the emergency arises. Some students do not meet those conditions and in many cases, parents want adult management of their child's emergency situation, so in the majority of students with severe allergies, it has been agreed that it is safest to involve school staff.

In North Carolina during the 2012-13 school year epinephrine availability for previously undiagnosed students exhibiting a new anaphylactic response could be administered using the following processes:

- Medical Care Commission credentialing as described in state statute 10A NCAC 13P .0509
- Standing orders written by a physician and compliant with the North Carolina Board of Nursing regulations for a Registered Nurse
- EMT administration under their regulations when arriving on a scene.

Eighteen LEAs reported using the North Carolina Medical Care Commission credentialing process during the 2012-13 school year.

Administration of Glucagon®

Glucagon® is a medication administered by injection for a student with diabetes who is experiencing a dangerously low blood glucose level. Insulin, by contrast, is a drug used to treat elevated blood glucose levels. Of the two extremes, low blood glucose is the most immediately life-threatening and needs to be treated quickly to increase blood glucose in the diabetic student.

Administration of Diastat®

Diastat® is a drug with the generic name of diazepam, which is the active ingredient in Valium®, and is given through the rectum to treat an intractable (continuous) seizure.

Administration of Versed®

Versed is a form of anesthesia that some physicians prescribe for children with intractable seizures to be given through the inhalation route (nasal spray). The N.C. School Health Unit nurse consultants issue strong advisories to school nurses regarding requests to administer the drug and to seek alternative medication orders, when possible. Versed for school-day administration does not currently come prepackaged for intranasal administration necessitating preparing the prescribed dose for each use. It also carries the rare, but extremely serious, risk of depressing a student's respiratory status quickly, potentially leading to respiratory arrest and death. Emergency medications in schools are often administered by school staff other than school nurses.

The following chart identifies how many times per year the following drugs were given in N.C. public schools during the past two years.

2012-2013

Name of Medication	Medication 2011-2012	Medication 2012-2013
Diastat		
☐ Administered by licensed nurse	51	59
☐ Administered by non-nurse	94	115
Glucagon		
☐ Administered by licensed nurse	2	8
☐ Administered by non-nurse	3	6
Versed		
☐ Administered by licensed nurse	0	7
☐ Administered by non-nurse	0	2
Epinephrine (new data this year)		
☐ Administered by licensed nurse	n/a	112
☐ Administered by non-nurse	n/a	34

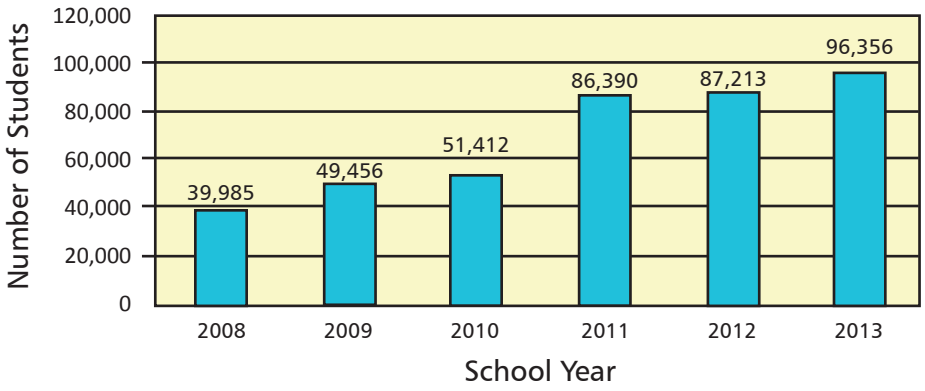
School nurses routinely audit the medication logs of students to assure that students are receiving their medications safely and accurately. Most frequently, these audits occur quarterly during the school year.

The following table provides a 6-year overview of the numbers and percentage of students receiving medications as reported by school nurses.

Number and Percent of Students Receiving Medications Administered at School

School year	# Students	Daily Medications (% of all students)	Medications for Emergencies (% of all students)
2007-2008	1,404,957	30,433 (2.2%)	39,985 (2.8%)
2008-2009	1,410,497	29,814 (2.1%)	49,456 (2.1%)
2009-2010	1,402,269	29,529 (2.1%)	51,412 (3.7%)
2010-2011	1,409,895	28,014 (2.0%)	86,390 (6.1%)
2011-2012	1,417,458	28,509 (2.0%)	87,213 (6.2%)
2012-2013	1,427,281	29,607 (2.1%)	96,356 (6.8%)

Number of Students With Orders for Emergency Medications



Health Counseling

Students seek a school nurse for accurate, confidential advice on issues ranging from normal growth and development to serious emotional and mental health concerns. They expect a registered nurse to provide medically-accurate and non-judgmental information related to their health and concerns. The chart that follows lists some of the health counseling provided by school nurses, defined as any encounter with a student where direct service, instruction and advice for health promotion, health improvement and health maintenance were discussed. During the 2012-2013 school year, the numbers of such encounters reported by school nurses totaled 299,489; 51,046 more than the previous year's activities in this broad category. The single most frequent topic for school nurse counseling was asthma. The second most frequent were hygiene related concerns. The school nurse is frequently engaged in conversations with students about menstruation, hygiene, body odor, acne and other issues related to puberty. Students also confide in a school nurse about instances of violence or bullying, and about possible neglect or abuse within their family or their concerns for a friend or neighbor. School nurses must report suspicions of child abuse/neglect whether observed or given credible suspicion by another person. Students also sought the advice of school nurses about substance abuse and tobacco use. Individual discussions around depression/suicide occurred in all grade levels.

Individual Health Counseling Sessions by Topic and Grade Level[12]

Health Counseling	Elementary School	Middle School	High School	Total
ADD/ADHD	12,648	6,168	3,346	22,162
Asthma	33,312	16,969	7,414	57,695
Child abuse/neglect	2,219	945	612	3,776
Chronic illness	10,359	4,323	5,076	19,758
Depression (situational or chronic)	1,092	1,445	2,514	5,051
Diabetes	11,698	14,132	11,416	37,246
Hygiene	35,947	7,522	5,646	49,115
Mental health issues (not otherwise listed)	5,490	4,543	5,745	15,778
Nutrition	11,629	6,561	8,358	26,548
Pregnancy	33	609	5,674	6,316
Puberty; reproductive health	3,533	4,961	5,401	13,895
Seizure disorders	3,179	1,492	2,005	6,676
Severe allergies	11,558	4,105	3,708	19,371
Sickle cell	466	271	220	957
Substance abuse including tobacco use, prescription abuse, etc.	372	1,723	3,008	5,103
Suicidal ideation	201	540	534	1,275
Violence/bullying	3,083	3,588	2,096	8,767
Totals	146,819	79,897	72,773	299,489

Pregnancy

For the fifth year in a row, there was a decline in the number of pregnancies among public school students across all grade levels, as reported by the school nurses. Depending on the needs of the student, school nurses may help manage a student's pregnancy as part of nursing case management or on physician orders, or may provide health education and health promotion through group teaching regarding care of the current pregnancy, anticipatory guidance of labor and delivery and infant and maternal care. The number of students reported by school nurses to be known to have been pregnant during the 2012-2013 school year is 3,022. That number is 673 fewer than the previous year. This represents more than 1,882 fewer student pregnancies from the recent high of 4,904 during school year 2007-08. The latest figure represents a 38 percent decrease since 2008.

With assistance from school nurses, the majority of students managed their pregnancies well enough to remain enrolled in their normal school location. For about 25 percent of students, at some time during either the prenatal or postpartum period, or both, they received home-bound instruction instead of school-located instruction.

[12] Most but not all LEAs reported within these categories in the annual survey.

Status of School Enrollment for Students Known to be Pregnant

	Elementary	Middle School	High School	Total
Known pregnancies	2009-2010: 3 2010-2011: 2 2011-2012: 1 2012-2013: 2	2009-2010: 278 2010-2011: 226 2011-2012: 183 2012-2013: 162	2009-2010: 3,996 2010-2011: 3,659 2011-2012: 3,475 2012-2013: 2,858	2009-2010: 4,277 2010-2011: 3,887 2011-2012: 3,659 2012-2013: 3,022
Students receiving homebound instruction due to pregnancy 2012-2013	0	41	713	754

Known Pregnancies by Year

School Year	Pregnancies reported to school staff	% increase or decrease from previous year
2003-2004	3,131	+ 16%
2004-2005	3,406	+ 9%
2005-2006	4,072	+ 20%
2006-2007	4,422	+ 9%
2007-2008	4,904	+ 11%
2008-2009	4,660	- 5%
2009-2010	4,277	- 8%
2010-2011	3,887	- 9%
2011-2012	3,659	-6%
2012-2013	3,022	-17%

LOCAL OUTCOME

We experienced a 30 percent decrease in student pregnancies this year!

Tobacco Use by Students

Since Aug. 1, 2008, all schools have been required to adopt, implement, and enforce tobacco-free[13] school campus policies as mandated by G.S. 115C-407, Article 29A. In addition to state law and school policy, schools communicate tobacco-free messages to young people through health education programs, social marketing messages, cessation classes for students or staff, and through the day-to-day modeling and interactions among staff and students. In some LEAs, the school nurses offer

[13] School policy totally prohibits tobacco use for all students, staff, and visitors in the school buildings and extends to the entire campus, vehicles, and all school events including outdoor events, regardless of time of day or location of event.

classes and programs to reinforce restrictions against smoking and to encourage cessation and provide mentoring to youth groups advocating against tobacco use.

In a May 2012 press release the North Carolina Department of Health and Human Services announced that the teen cigarette smoking rate in North Carolina reached an historic low in 2011. Since 2003, teen cigarette smoking rates have fallen steadily, according to results from the 2011 NC Youth Tobacco Survey. The survey finds that the middle school smoking rate dropped to 4.2 percent from 4.3 percent in 2009, and high school smoking lowered to 15.5 percent from 16.7 percent in 2009[14]. These are all-time lows for each group. The TRU (Tobacco. Reality. Unfiltered) Program, a prevention initiative that targets youth through media campaigns and school and community programs (**www.tru.nc.gov**), is credited with reducing teen tobacco use in North Carolina.

Suicide and Homicide

Intentional death of students, either through suicide or homicide, is a public health emergency. Although the number is small by comparison to the adult population, the loss of a student through homicide or suicide is a traumatic event for the entire community.

According to reports from the LEAs, suicide was reported to be attempted by 482 public school students, and 37 of those suicides resulted in death. Suicide cases increased, from 19 the previous year to 37 in 2012-2013. Eleven students died through homicide. One suicide death occurred at school. None of the deaths from homicide were reported as occurring at school.

Death by Suicide/Homicide: School Year 2012-2013

	Elementary	Middle School	High School	Total
Suicide attempts by grade level	37	127	318	482
Deaths from suicide	1	4	32	37
Suicides occurring at school	0	0	1	1
Death from homicide	4	2	5	11
Homicides occurring at school	0	0	0	0

Health Teaching

School nurses were involved in a variety of health teaching and instructional sessions to groups and in classrooms. Classroom instruction included short presentations on such topics as hygiene, first aid, wellness and fitness promotion, Open Airways and other asthma management programs, AIDS peer education, smoking prevention and cessation, violence prevention, puberty, and prenatal and parenting programs. Instruction to faculty and staff included the topics of medication administration, infection control, OSHA blood-borne pathogen regulations, CPR, use of AEDs, first aid, and chronic disease management, including general training on the signs and symptoms and first aid for diabetes, and intensive training for the care of individual students with diabetes. The nurses also conducted health fairs and made presentations to parent organizations, school boards, and civic and community groups. School nurses reported providing a

[14] http://www.tobaccopreventionandcontrol.ncdhhs.gov/data/yts/yts11/2011YTSFactSheetPages1and2-051612-FINAL.pdf

total of 23,974 programs and presentations during the 2012-2013 school year.

- 36 LEAs (31%) present asthma education programs for staff.
- 31 LEAs (27%) provide asthma education programs for students.
- 113 LEAs (99%) provide diabetes education programs for staff

Often, the school nurse is the first health care provider that the student sees for a specific problem. In some cases, the nurse is the only health care provider the student sees for minor illnesses and injuries. During the 2012-2013 school year, school nurses assessed and managed 207,175 students for illness or injury described as originating at home. Issues such as the student's health insurance status, access to care, family economics or transportation often arise in association with illnesses and injuries. In addition to providing care and guidance, nurses assist families by locating medical and dental resources and referring students to providers for the diagnosis and treatment of a wide variety of health problems.

LOCAL OUTCOME

Health education has been a focus for us. The school nurses taught classes on puberty, hygiene, nutrition and exercise. One nurse did a Lunch n' Learn for parents on "Health Wellness for Elementary Students" and arranged for a Health Educator from the Health Department to do a parent session on asthma.

LOCAL OUTCOME

Our school nurses took over the responsibility for doing home visits for unsecured vision referrals. As a result, we increased the secured care rate from 59% last year to 85% this year.

Health Screening, Referral, Follow-up, and Securing Care

Voluntary mass screenings by grade or school are often conducted with the assistance of trained volunteers or other health professionals. Prevent Blindness of North Carolina partners with local districts to certify the vision screeners through provision of the training programs.

Vision screenings are conducted by school nurses as well as by other school staff and volunteers. School nurses follow up on those referred for vision examination and in many cases are the persons who locate sources of low-cost or free care for those unable to afford treatment.

Significant numbers of students who were referred to a dentist or doctor based on the screening process did not or were not able to secure that care from a health professional. Additional staff to provide appropriate follow-up and care management services for students may reduce this gap in the completion of the screening process. In some situations, securing additional health care providers may also reduce the gap.

The following table lists the results of some of the mass screening projects that were conducted during the 2012-2013 school year.

Number of Students Screened by School Health Services Staff

Screening	Screened	Referred	% Referred	Secured Care	% Secured Care
Body Mass Index (BMI)	59,151	2,208	4%	190	9%
Hearing	88,628	2,390	3%	1,547	65%
Vision	512,369	38,853	8%	27,255	70%

The ultimate goal of any mass screening program is to assess the condition, and treat if indicated. One indicator of the success of a school health screening program is the percent who secured care, defined as: the number of students who did not pass a screening, were referred for further evaluation, and were evaluated by another health care provider who could diagnose and determine the appropriate way to treat the condition. Among the health conditions for which school nurses screened during the 2012-2013 school year, screening for vision achieved a 70 percent rate of successfully securing care, completing the screening process.

Screening for Obesity

North Carolina's children and youth are among the more overweight in the nation, with the state ranking 23rd from the bottom nationally for childhood obesity[15]. In North Carolina, nearly one-third (31.4%) of children aged 10 – 17 are overweight or obese as compared to the national rate of 31.3% overall. Nearly all school districts have instituted programs to screen at least some students for overweight/obesity by measuring height and weight to obtain the Body-Mass Index (BMI). Some programs are operated as part of the physical fitness measurements taken in physical education or wellness classes. Screenings are also conducted in a variety of settings: health fairs, physical education classes, or routine collecting of height and weight data. In some cases, the screenings are conducted in collaboration with other health partners.

Data from 2012-2013 do not distinguish between mass screening of all students or occasional screening of students referred for overweight, and they do not distinguish between referral for overweight or underweight. The percentage of public school students screened for BMI in North Carolina by the school health services staff is generally small, 4 percent of the total school population, and routine screening for BMI is often not universally accepted as a school health services activity by families. During 2012-2013, 59,151 students were screened for BMI. About four percent of those students who were measured received referrals for either overweight or underweight. The referral rate of four percent is much lower than the expected 31 percent if the screening had encompassed the entire student population, but the sample of students screened was not representative of the entire student population due to the limited presence of formal screening programs for BMI in North Carolina schools. Nine percent of those students identified as needing follow up were able to secure care, a very low rate of completing the screening process.

[15] http://kff.org/other/state-indicator/overweightobese-children/# Accessed 10-15-13.

Vision Screening

There is no mandate in North Carolina for schools to routinely screen for vision, although rules and regulations exist related to screenings required for students needing additional academic support. Physicians and other health care providers who examine children prior to entry into kindergarten are required to screen for vision as part of that exam and to report those findings on the state-created Kindergarten Health Assessment (KHA) form.

Many schools, however, follow state recommendations to screen all students periodically through elementary age and once more in middle or high school. Screening for vision is the most frequent school screening program in North Carolina. More than half a million North Carolina school children (36%) had their vision checked for possible eye problems. Training for that screening is offered by the Prevent Blindness North Carolina Vision (PBNC) Screening Certification Program, working under contract with the N.C. Division of Public Health in collaboration with the Children and Youth Branch to deliver vision screening certification training to all 100 counties. The PBNC program assures consistent screening practices and referral criteria across all schools in North Carolina. Prevent Blindness is a non-profit organization dedicated to reducing the incidence and impact of vision deficits. The school vision screening program is an example of the highly collaborative intersections among school health professionals, non-profit organizations, volunteers and health care providers.

School nurses often coordinate the vision screening conducted in schools and report their results both to Prevent Blindness and to the Division of Public Health.

Hearing Screening

As with vision screening, there is no mandate in North Carolina for schools to routinely screen for hearing, although the same rules and regulations apply related to screenings required for students needing additional academic support. Physicians and other health care providers who examine children prior to entry into kindergarten are required to screen for hearing as part of that exam and to report those findings on the KHA form.

Not all school nurses are trained in and authorized to conduct hearing screenings. School nurses assist in hearing screenings, especially related to referrals and follow-up.

Health Policies

Policies are essential to guide the development and implementation of coordinated school health programs. All local health departments in the state develop an agreement, the Memorandum of Agreement (MOA), with each school district in their jurisdiction. These MOAs are locally developed and provide an avenue for collaboration on school and health policies and procedures.

School policies support school nursing practice, provide parents a consistent method of communicating those policies, and provide students and staff assurance of attention to health and safety. The School Health Unit of the Division of Public Health provides guidelines regarding policy development at the local level, and recommends, at minimum, that school boards study and develop written policies on the topics listed on the chart below.

The percentage column in the table that follows indicates the percent of LEAs that have written policies on those topics. An emerging policy addresses maintenance of electronic health records in school. The trend in the health care industry is greater reliance on electronic medical records (EMR) and electronic documentation of health care provided. This school year, 51 LEAs (44 percent) reported that the school nurses document at least some of the nursing care they provide electronically. This represents an increase of 9% over the previous school year.

School Health Policy	% of LEAs with written, board-approved policy
Prevention and control of communicable disease	99%
Provision of emergency care	84%
Screening, referral and follow-up	59%
Medication administration	100%
Identification of students with acute or chronic health care needs/conditions	69%
Maintenance of student health records	77%
Special health care services (State Board Policy GCS-G-006-.0402)	86%
Reporting student injuries	73%
Response to Do Not Resuscitate (DNR) order	31%

Community Involvement in School Health Services

Community involvement contributes to the quality and effectiveness of school health programs and services. School nurses encourage and promote community involvement through:

- Establishment of school health advisory councils;
- Development of inter-agency planning and written agreements;
- Recruitment of local physician advisors; and,
- Development of parent-teacher organization (PTA/PTO) health subcommittees.

The more visible activities reflecting school and community involvement include:

SHAC (School Health Advisory Council);

Cooperative Agreements with Local Health Departments;

School Located Influenza Clinics; and,

School-Based School-Linked Health Centers (SBSLHC).

School Health Advisory Council (SHAC)

All of the local education agencies (LEAs) have School Health Advisory Councils (SHACs). These multi-disciplinary councils are required by State Board of Education Policy #GCS-S-000. Nearly all of the SHACs have a school nurse among the council members (106 of 115) and 52 SHACs have a physician serving on the council. According to the policy, each SHAC must include representatives from physical education, health education, nutrition, school staff wellness, health services, mental/behavioral health, safe school environment, parents/community members, the local health department, and school administration. The SHACs advise LEA leadership, superintendents, and local boards of education on health policies, programs, and practices. The SHACs build collaborative trust and knowledge around health and academics, and can disseminate relevant information to the schools. There are currently 112 SHACs representing the 115 LEAS (three city LEAs have joint city/county SHACs).

LOCAL OUTCOME

School nursing led collaboration with our SHAC and Parent Teacher Organization to offer our First Annual Family Fitness Fair with great success. Educational opportunities about being more physically active as a family were available and many booths were present providing information as well as games and fitness activities. The fair was well attended.

Cooperative Agreements With Local Health Departments

In every county in the state, a Memorandum of Agreement between the local health department and the school district is required in order for the health department to receive state funds. These annually reviewed agreements outline the

relationships and specific activities each agency will undertake to support the health of children in public schools. They delineate the responsibilities of each regarding epidemics and other community emergencies and the specific consultations that each will provide the other, while respecting student privacy. In addition to consultation with health department experts, 67 LEAs are able to consult with a physician regarding the school health program. Most (50 of the physicians, or 75%) who serve in that capacity are either family practice physicians or pediatricians.

School-Located Influenza Clinics

During school year 2012-2013, 70 percent of the school districts hosted school-located influenza clinics (SLIC). Influenza season in 2012-2013 experienced an early season with no new (novel) strains present in any great numbers. School nurses and administrators, in cooperation with state and local health departments, hospitals and others, made it possible for more than 36,768 doses of flu vaccine to be given to students and/or staff at school for protection against influenza. Parental permission was required to administer doses to students.

School-based, School-linked Health Centers

In about one fifth of the state's counties, coalitions of local health care providers have established school health centers in the schools braiding federal grants, private local funding and some state funding. During school year 2012-2013, there were at least 50 health centers operating in at least 20 counties.[16] The clinics primarily serve students in middle and high schools due to the significant need of adolescents for access to medical care, including care for mental health or behavioral health issues. Centers provide primary care and preventive clinical services in close collaboration with the students' medical home physician during the school day, minimizing interruption of the student's time in class and supporting coordinated medical care. These sites increase the school nurse's ability to refer a student or his family for medical care, especially in areas of low resources. The school health centers provide clinical health services and may bill for the services to the parent's insurance, other insurance providers and Medicaid. Parental permission is required for receipt of school health center services, including required and optional (recommended) immunizations, physical exams for sports, diagnosis and treatment for medical conditions, behavioral or mental health counseling, and nutrition counseling.

Nurses employed by school health centers function similarly to those in a physician's office or clinic. Since they do not meet the definition of nor provide the population-based functions of school nurses, those registered nurses working in the school health centers are not counted among the state's school nurse positions or in the school nurse ratio.

School Health Centers depend on a combination of state funds, patient revenues, private foundation funds/ donations and in-kind resources to support the health services that they provide. Thirty-two centers are partially funded by the N.C. Division of Public Health. These funds are used to leverage additional resources at the local level. Partners in these centers include N.C. Department of Public Instruction, N.C. Division of Medical Assistance, families, private medical

[16] http://www.ncscha.org/about.php – Accessed 10/15/13.

practices, local health departments, universities and the N.C. School Community Health Alliance (NCSCHA).

Additional information on school health centers may be obtained from the NCSCHA website, **www.ncscha.org**.

Conclusion

School health services are one component of a Coordinated School Health Program. By working with multiple partners in health and education, including the North Carolina Division of Public Health, North Carolina Division of Medical Assistance, North Carolina Department of Public Instruction, North Carolina Pediatric Society, North Carolina Academy of Family Physicians, North Carolina Dental Society, Prevent Blindness North Carolina, North Carolina School and Community Health Alliance, local health departments, and more, school nurses are working to help students achieve at levels they might not otherwise reach. In many areas North Carolina can serve as a model for other school health programs. In others, services are limited as a result of relatively slow growth in the number of school nurse positions in relation to student population and health care needs. Working towards an increase in the number of school nurses in North Carolina could positively impact overall student health and well-being, resulting in improved student attendance and successful academic outcomes.

Appendix A: Chronic Health Conditions, School Year 2012-2013

Condition	Elementary	Middle	High	Total	Total with IHP for condition	Total with a related 504 plan
ADD/ADHD	37,129	21,205	16,800	75,134	7,167	7,060
Allergies (severe)	24,262	8,855	7,946	41,063	22,552	485
Asthma	59,908	27,487	24,728	112,123	52,003	939
Autistic disorders (ASD) including Asperger's Syndrome, PDD	6,025	2,521	2,435	10,981	1,207	628
Blood disorders not listed elsewhere: e.g. chronic anemia, Thalassemia)	593	297	445	1,335	403	44
Cancer, including leukemia	409	176	245	830	307	124
Cardiac condition	2,760	1,367	2,146	6,273	2,065	169
Cerebral Palsy	1,205	595	670	2,470	776	177
Chromosomal conditions not otherwise listed including Down's Syndrome, Fragile X, Trisomy 18	1,536	568	702	2,806	536	126
Chronic encopresis	525	136	101	762	226	38
Chronic infectious diseases: including Toxoplasmosis, Cytomegalovirus, Hepatitis B, Hepatitis C, HIV, Syphilis, Tuberculosis	76	32	56	164	42	4
Cystic Fibrosis	164	62	95	321	183	76
Diabetes Type I	1,105	1,095	1,624	3,824	3,550	1,094
Diabetes Type II	163	369	629	1,161	588	83
Eating Disorders (including anorexia, bulimia)	129	138	346	613	82	33
Emotional/behavior and/or psychiatric disorder not otherwise listed	5,105	3,474	4,731	13,310	1,210	919
Fetal Alcohol Syndrome	118	39	45	202	18	13
Gastrointestinal disorders (Crohn's, celiac disease, IBS, gluten intolerance, etc.)	2,463	1,372	1,629	5,464	1,667	251
Hearing loss	2,170	1,013	1,064	4,247	521	434
Hemophilia	179	90	126	395	245	36
Hydrocephalus	424	143	159	726	405	41
Hypertension	372	414	877	1,663	347	35
Hypo/Hyperthyroidism	320	283	424	1,027	139	19

Condition	Elementary	Middle	High	Total	Total with IHP for condition	Total with a related 504 plan
Metabolic conditions or endocrine disorders not otherwise listed	397	253	410	1,060	365	74
Migraine headaches	3,325	3,952	6,043	13,320	2,777	203
Multiple Sclerosis	15	14	47	76	20	7
Muscular Dystrophy	102	61	60	223	80	21
Obesity (> 95th% BMI)	7,784	2,199	1,450	11,433	179	5
Orthopedic disability (permanent)	1,089	733	914	2,736	584	234
Other neurological condition not otherwise listed	872	429	463	1,764	431	151
Other neuromuscular condition not otherwise listed	309	209	272	790	227	83
Renal / Adrenal / Kidney condition including Addison's	1,558	754	1,053	3,365	783	87
Rheumatological conditions (including Lupus, JRA)	316	257	388	961	373	128
Seizure Disorder/ Epilepsy	4,980	2,117	2,679	9,776	6,145	574
Sickle Cell Anemia	564	304	303	1,171	712	92
Sickle Cell Trait (only)	967	409	485	1,861	137	7
Spina Bifida (myelomeningocele)	259	103	130	492	253	51
Traumatic Brain Injury	275	170	507	952	280	115
Visually impaired (uncorrectable)	1,288	626	588	2,502	326	263

Appendix B: Reported Injuries in North Carolina Public Schools Requiring EMS Response or Immediate Care by Physician/ Dentist AND Loss of 1/2 Day or More of School, School Year 2012-2013

Type of Injury	Bus	Hall	Classroom	Playground	PE Class	Shop	Restroom	Lunchroom	Other	Total #	Total %
Abdominal/Internal Injuries	5	8	41	36	49	0	6	5	14	164	**1%**
Anaphylaxis	7	6	106	38	21	0	0	50	45	273	**1%**
Back or Neck Injuries	34	31	67	122	151	4	9	7	56	481	**2%**
Dental Injury	16	36	130	297	196	2	19	20	38	754	**3%**
Dislocation	0	0	1	0	1	0	0	0	0	2	**0%**
Drug Overdose	3	8	47	6	2	2	21	4	37	130	**1%**
Eye Injuries	14	60	305	296	229	35	5	22	46	1012	**5%**
Fracture	14	94	126	1196	755	13	24	15	310	2547	**12%**
Head Injuries	59	188	453	1010	1034	10	82	67	469	3372	**16%**
Heat Related Emergency	4	6	26	74	127	1	2	3	26	269	**1%**
Laceration	42	146	557	606	426	101	62	53	120	2113	**10%**
Other	47	127	586	346	393	7	40	85	249	1880	**9%**
Psychiatric Emergency	9	41	424	23	13	1	16	5	278	810	**4%**
Respiratory Emergency	34	46	574	247	278	0	8	25	101	1313	**6%**
Seizure	48	98	1093	81	69	3	13	67	77	1549	**7%**
Sprain or Strain	42	294	308	1352	2350	29	30	61	453	4919	**23%**
Total #	378	1189	4844	5730	6094	208	337	489	2319	21588	
Total %	2%	6%	22%	27%	28%	1%	2%	2%	11%	100%	

Appendix C: North Carolina School Nurse-to-Student Ratio by Local Education Agency, School Year 2012-2013

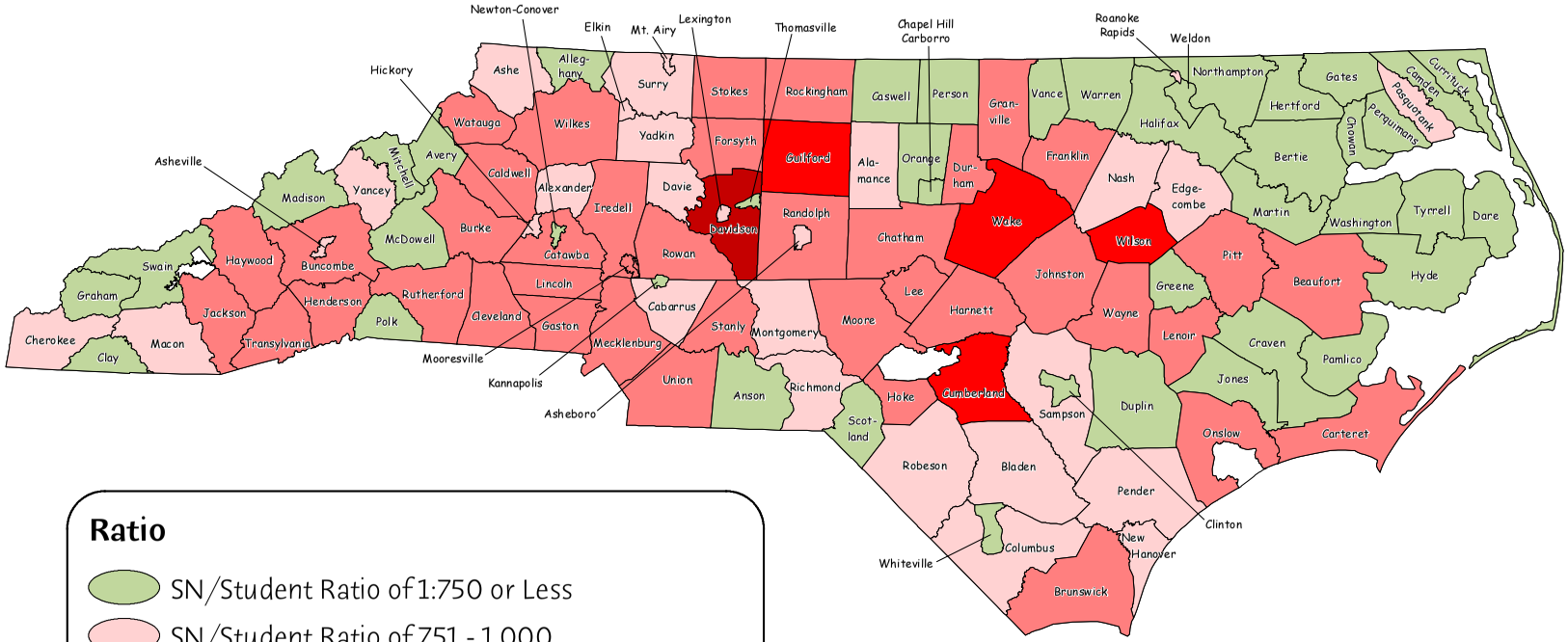
County/LEA Name	Ratio (Nurse:Student)	County/LEA Name	Ratio (Nurse:Student)
Alamance-Burlington Schools	907	Forsyth County Schools	1,849
Alexander County Schools	962	Franklin County Schools	1,115
Alleghany County Schools +	696	Gaston County Schools	1,213
Anson County Schools +	516	Gates County Schools +	573
Ashe County Schools	792	Graham County Schools +	493
Avery County Schools +	711	Granville County Schools	1,696
Beaufort County Schools	1,163	Greene County Schools	749
Bertie County Schools +	655	Guilford County Schools	2,200
Bladen County Schools	752	Halifax County Schools +	681
Brunswick County Schools	1,109	Roanoke Rapids City Schools +	753
Buncombe County Schools	1,261	Weldon City Schools +	489
Asheville City Schools	889	Harnett County Schools	1,954
Burke County Schools	1,162	Haywood County Schools	1,123
Cabarrus County Schools	938	Henderson County Schools	1,458
Kannapolis City Schools +	705	Hertford County Schools +	604
Caldwell County Schools	1,111	Hoke County Schools	1,006
Camden County Schools +	633	Hyde County Schools +	565
Carteret County Schools	1,058	Iredell-Statesville Schools	1,247
Caswell County Schools +	694	Mooresville City Schools	1,148
Catawba County Schools	1,132	Jackson County Schools	1,014
Hickory City Schools	861	Johnston County Schools	1,766
Newton Conover City Schools +	738	Jones County Schools +	571
Chatham County Schools	1,187	Lee County Schools	1,173
Cherokee County Schools	832	Lenoir County Schools	1,292
Edenton/Chowan Schools +	555	Lincoln County Schools	1,446
Clay County Schools +	655	Macon County Schools	854
Cleveland County Schools	1,095	Madison County Schools +	641
Columbus County Schools	782	Martin County Schools +	575
Whiteville City Schools +	572	McDowell County Schools +	741
Craven County Schools +	698	Charlotte-Mecklenburg Schools	1,206
Cumberland County Schools	2,006	Mitchell County Schools +	660
Currituck County Schools +	603	Montgomery County Schools	826
Dare County Schools +	488	Moore County Schools	1,801
Davidson County Schools	3,625	Nash-Rocky Mount Schools	752
Lexington City Schools	753	New Hanover County Schools	780
Thomasville City Schools +	598	Northampton County Schools +	527
Davie County Schools	964	Onslow County Schools	1,174
Duplin County Schools +	665	Orange County Schools +	649
Durham Public Schools	1,225	Chapel Hill-Carrboro Schools +	662
Edgecombe County Schools	825	Pamlico County Schools +	318

Appendix C: North Carolina School Nurse-to-Student Ratio by Local Education Agency, School Year 2012-2013

County/LEA Name	Ratio (Nurse:Student)	County/LEA Name	Ratio (Nurse:Student)
Pasquotank County Schools	949	Surry County Schools	824
Pender County Schools	825	Elkin City Schools	780
Perquimans County Schools +	596	Mount Airy City Schools	839
Person County Schools +	667	Swain County Schools +	510
Pitt County Schools	1,162	Transylvania County Schools	1,179
Polk County Schools +	571	Tyrrell County Schools +	550
Randolph County Schools	1,654	Union County Schools	1,227
Asheboro City Schools	782	Vance County Schools +	668
Richmond County Schools	753	Wake County Schools	2,476
Robeson County Schools	977	Warren County Schools +	595
Rockingham County Schools	1,464	Washington County Schools +	565
Rowan-Salisbury Schools	1,643	Watauga County Schools	1,095
Rutherford County Schools	1,069	Wayne County Schools	1,057
Sampson County Schools	954	Wilkes County Schools	1,009
Clinton City Schools +	745	Wilson County Schools	2,051
Scotland County Schools +	550	Yadkin County Schools	923
Stanly County Schools	1,449	Yancey County Schools +	751
Stokes County Schools	1,332	**North Carolina**	**1,177**

+ School Districts that meet or exceed the recommended nurse to student ratio of 1:750

School Nurse/Student Ratio SFY 2012-2013



Ratio

- SN/Student Ratio of 1:750 or Less
- SN/Student Ratio of 751 - 1,000
- SN/Student Ratio of 1,001 - 2,000
- SN/Student Ratio of 2,001 - 3,000
- SN/Student Ratio of 3,001 - 3,625
- Not Eligible Federal and Military School Districts

Source: NC Annual Survey of School Health Services, NC DHHS

Note: The standard school nurse to student ratio of 1:750 has been adopted by the NC Public Health Task Force, NC Department of Public Instruction and the NC Division of Public Health and is based on recommendations made by the American Academy of Pediatrics, Centers for Disease Control and Prevention, and National Association of School Nurses.

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This publication was supported by Cooperative Agreement Number 5U58DP001981-03 from Centers for Disease Control and Prevention (CDC). Its contents are solely the responsibility of the authors and do not necessarily represent the official views of CDC.